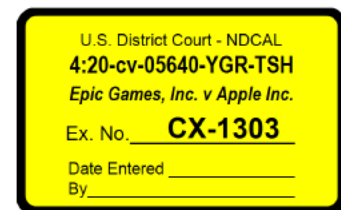
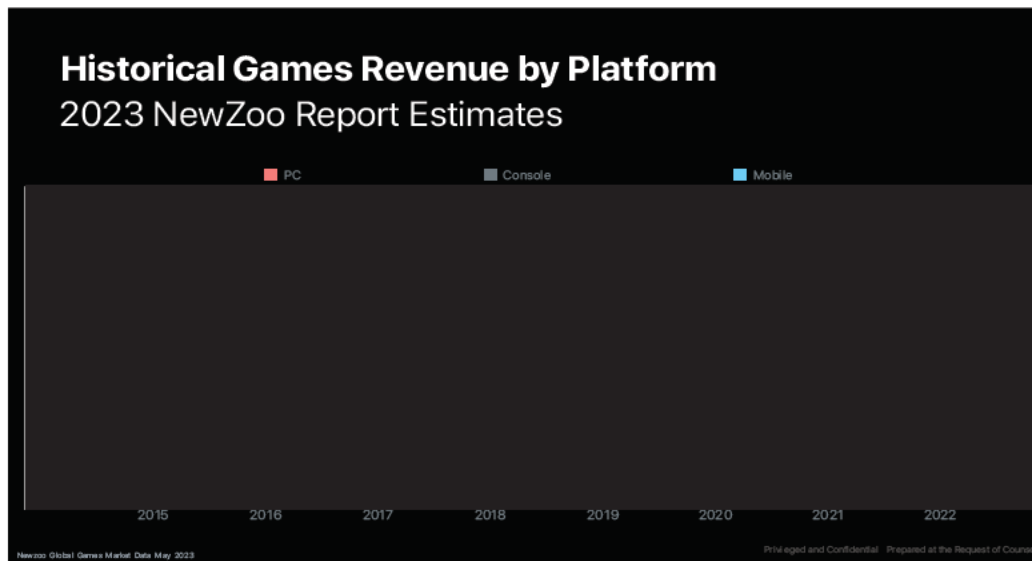


Carson intro





I believe you've seen this chart many times before but just as a reminder that the games business saw [REDACTED] over the last 8 years mostly driven by mobile gaming, which is larger than both PC and console combined.

However, the games industry started seeing [REDACTED] which caused [REDACTED] across PC, console and mobile and a general [REDACTED] of the industry.

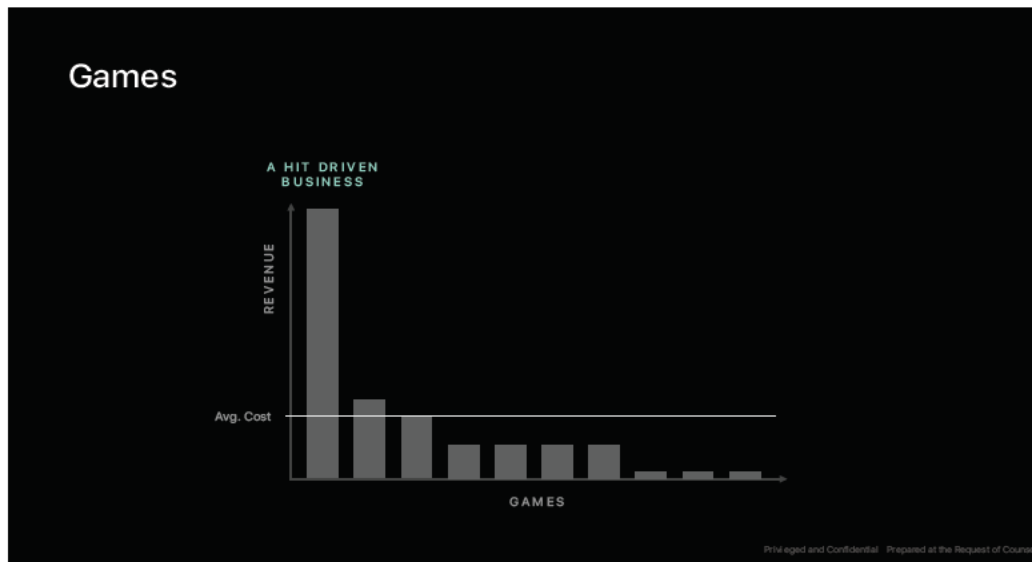
[CLICK}



And that trend is mirrored in our App Store games billings with CY22 [REDACTED] and for the current year, the year to date trend shows a continued [REDACTED]

While there are macro factors contributing to the [REDACTED], the games industry hit a few internal breaking points that accelerated these effects and we wanted to unpack these briefly today and show how developers are responding to these pressures.

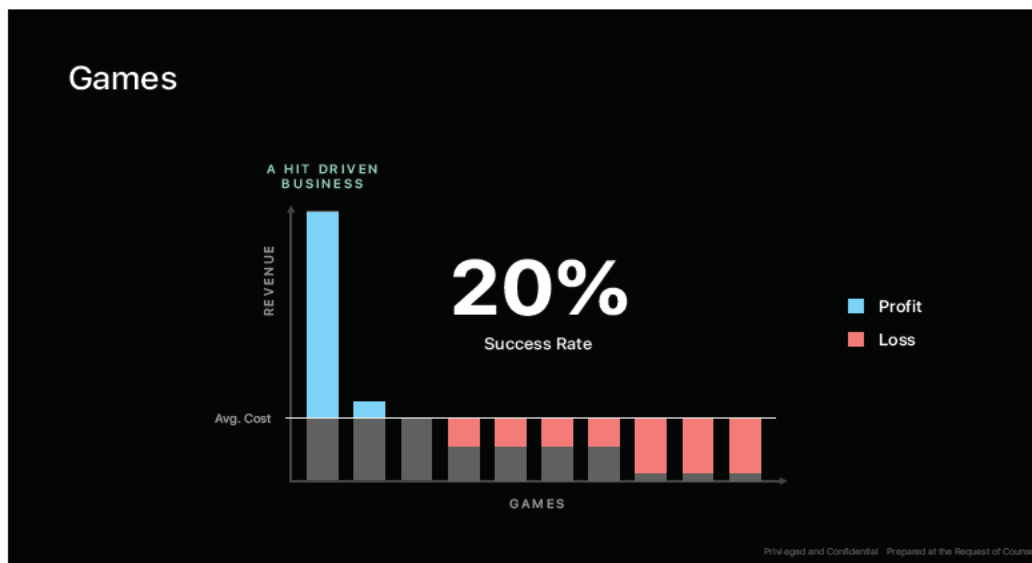
[CLICK]



Before we get there, we wanted to briefly look at how game developers operate their businesses. Game developers see themselves part of a hit driven content business. And in a hit driven business, they are operating a portfolio and they release of multiple games over time.

Some of these games will bring in a lot of revenue, and some less so.

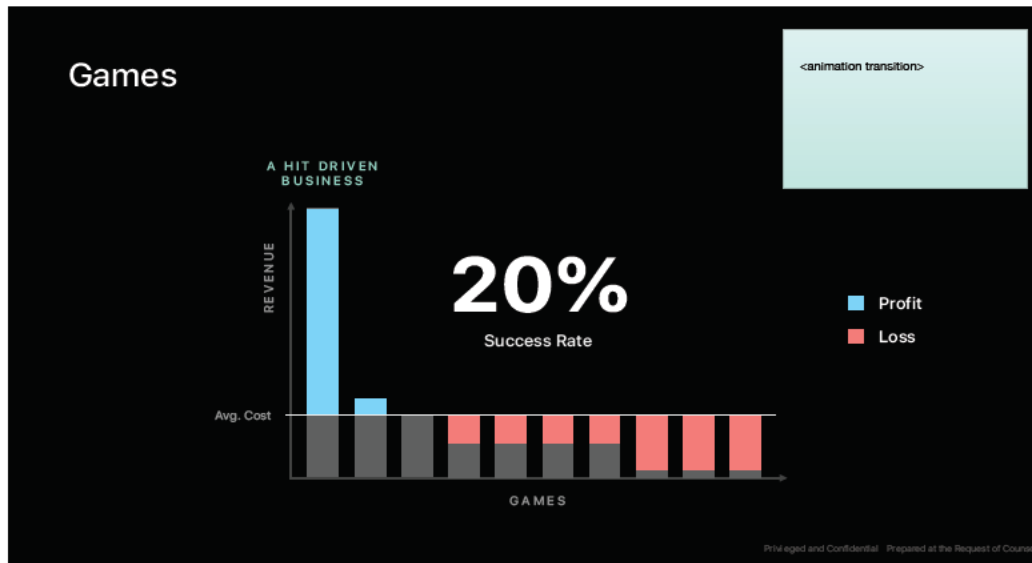
[CLICK] And when compared against an average cost of production ...



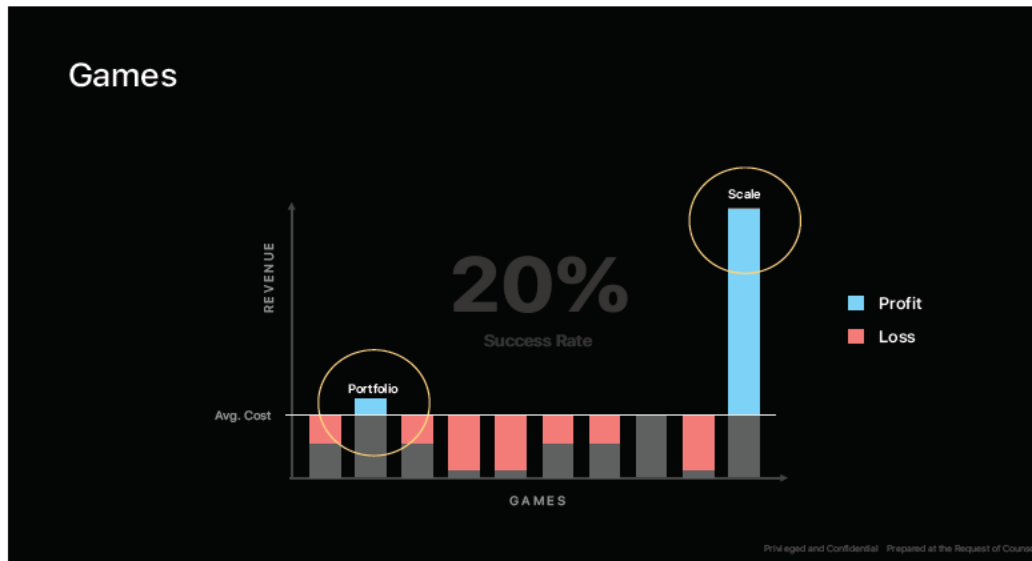
Some will be profitable, but most others won't. In fact,

[CLICK] a 20% success rate is considered remarkable given how difficult it is to make *any* money, let alone land a hit. And most of the time, that one hit is what's keeping the studio alive, until the next hit is found.

[CLICK]



(Auto Transition slide for animation)



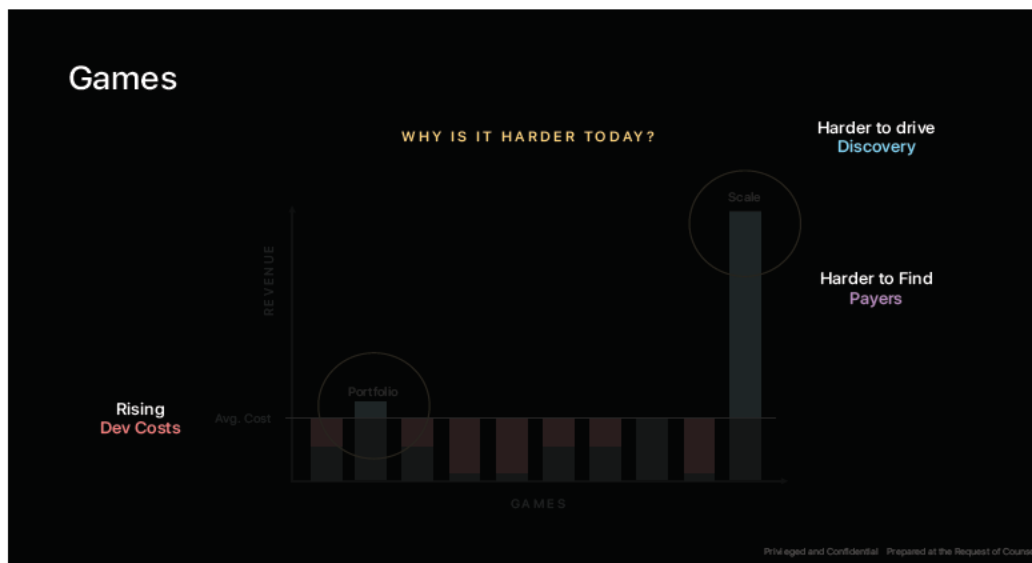
And given that you never know when that hit is even coming, you could be running a business in the red for a long time before recouping any of the reward for that risk.

So it's important to understand that game developers don't consider a barely profitable game a success. A success needs to be massive hit to bridge the gap to the next hit.

So in order to build successful games businesses, there are 2 key driving forces behind a game developers strategy.

[CLICK] Build a portfolio, so you have more horses in the race

[CLICK] and Scale. Reinvest your winnings, often into the same winning horse, and run it as a service for as long as possible



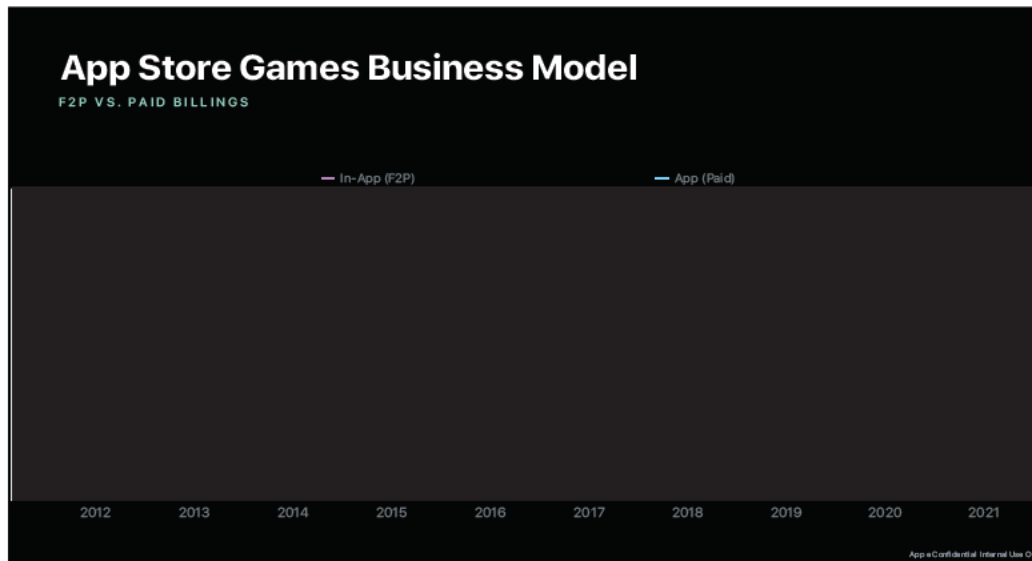
However, this is getting increasingly hard to manage, across 3 key vectors

[CLICK] the cost of development is rising

[CLICK] Payers are harder to find and monetize

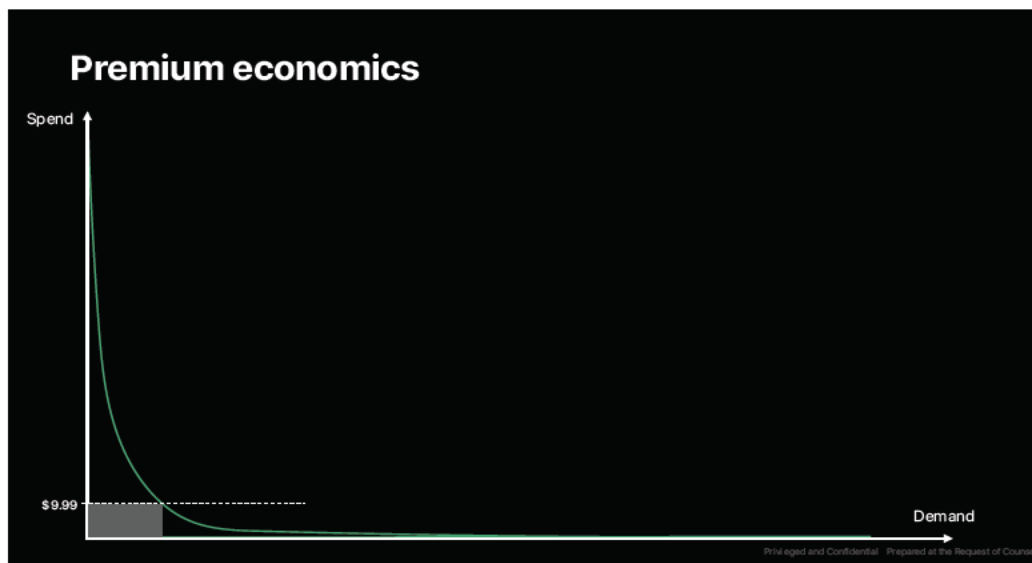
[CLICK] and It's getting harder to Acquire users in order to drive discovery and scale profitably

All of this resulting in a lower hit rate.



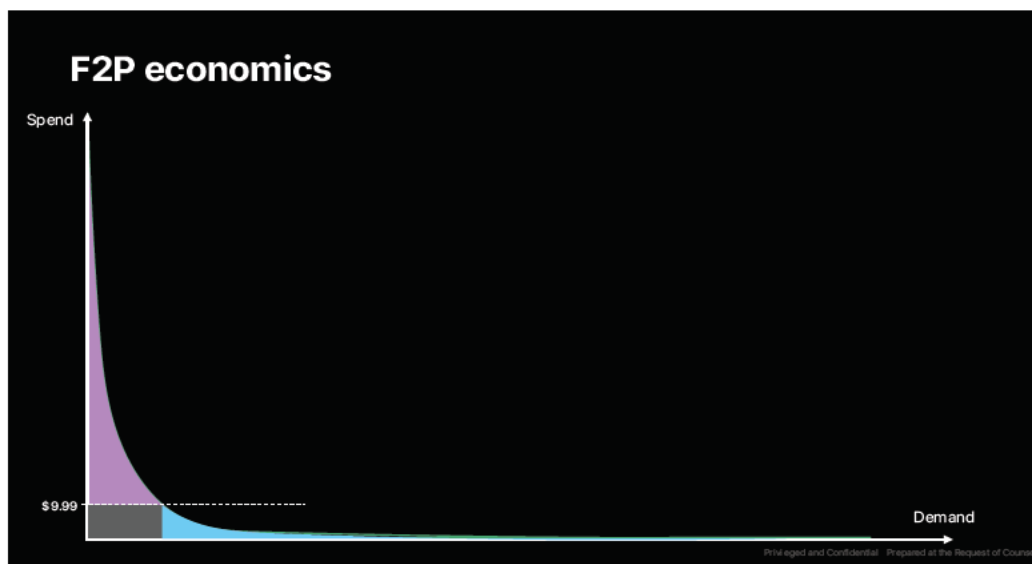
But before we go unpack these further, it's also important to keep in mind that the [REDACTED]

This chart compares the billings contribution of F2P games vs. paid apps. And just to confirm: [REDACTED]



Why does the Free 2 Play business work? [CLICK] If we look at a simple spend vs demand curve, where at any given price point, there is a specific set of demand.

A fixed upfront price of [CLICK] \$9.99, a developer can only serve a limited range of customer appetites, and hence earn a fixed amount of money as shown by the grey box.



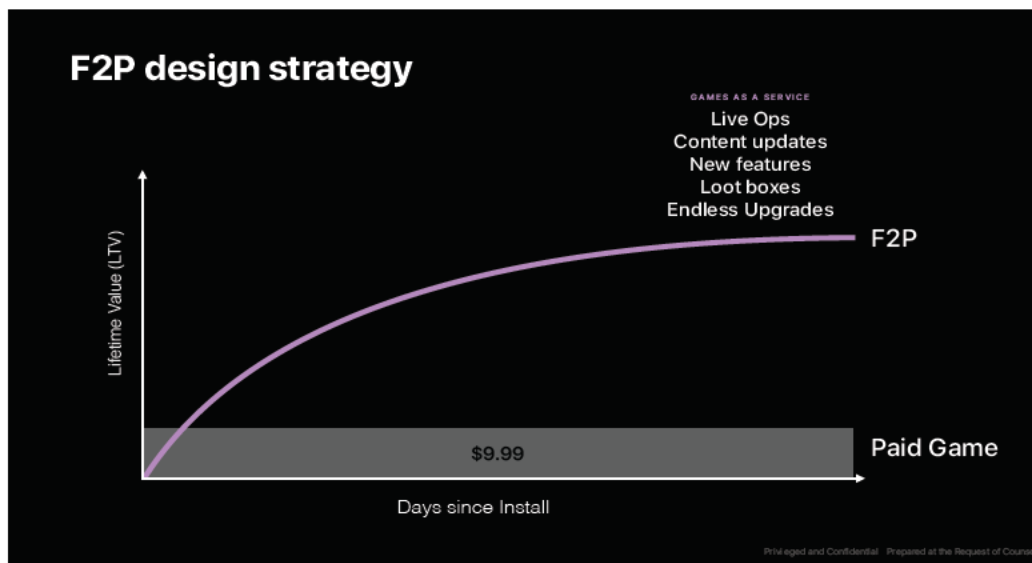
However, in a free to play business model, the entire curve is unlocked, from users who are able and willing to spend more than 10 dollars on their games (in purple), to those who would prefer to spend less or next to nothing (blue).

Initially and when I look back to my time when I was working at early F2P game companies, the assumption was that Free 2 Play unlocks the blue area, people that are willing to pay less, as the main opportunity however developers realized quickly that the actual upside is the purple area.

[CLICK]



And this is exactly what we see today on our platform. That segment of PAYERS, spending upwards of 10 dollars, represents [REDACTED] of our entire revenue. So if you are selling a game at \$9.99, you are technically losing out on that massive opportunity. And for developer, it's more attractive to find one person that is willing to spend \$1000 a game compared to finding 100 customers that spend \$10.



And games have become really successful in unlocking these high-spending customers.

[CLICK] As developers worked to earn users' time and money, games evolved into services, where users often play games for months and years, and

[CLICK] fund content development and new features through LiveOps, Loot boxes, and systems that allow for nearly endless progression and spend.


$$LTV > CAC$$

In order to scale, game developers must find these high affinity users that will spend a lot of money driving up LTV and exceed their Customer Acquisition Costs or CAC while doing so.

This simple equation now lies at the core of every games business.

[MAGIC MOVE]



And optimizing this equation has become the developer's top priority. If we look at a simple LTV / CAC graph,

[CLICK]

[CLICK]

[CLICK] A successful game like , operates around the mark, whereas [CLICK] might be found further up the line closer to the

[CLICK] Developers anywhere along this line are always looking for ways to move their games upwards, to increase LTV, and to the left, by lowering customer acquisition costs.

UA becomes Commodity

Demographic

Age 18 - 65+

Gender All Men Women

Languages English (US) X
English (UK) X
Enter a language...

Interests

Detailed Targeting INCLUDE people who match at least ONE of the following

Add demographics, interests or behaviors Suggestions Browse

- Demographics
- Interests
- Behaviors
- More Categories

SDK-based custom audience

- Customer File**
Use a customer file to match your customers with people on Facebook and create an audience from the matches. The data will be hashed prior to upload.
- Website Traffic**
Create a list of people who visited your website or took specific actions using Facebook Pixel.
- App Activity**
Create a list of people who launched your app or game, or took specific actions.
- Data Set**
Create an audience based on attribute data you've uploaded to Facebook.
- Offline Activity** UPDATED
Create a list of people who interacted with your business in-store, by phone, or through other offline channels.
- Engagement** UPDATED
Create a list of people who engaged with your content on Facebook or Instagram.

Facebook targeting capabilities

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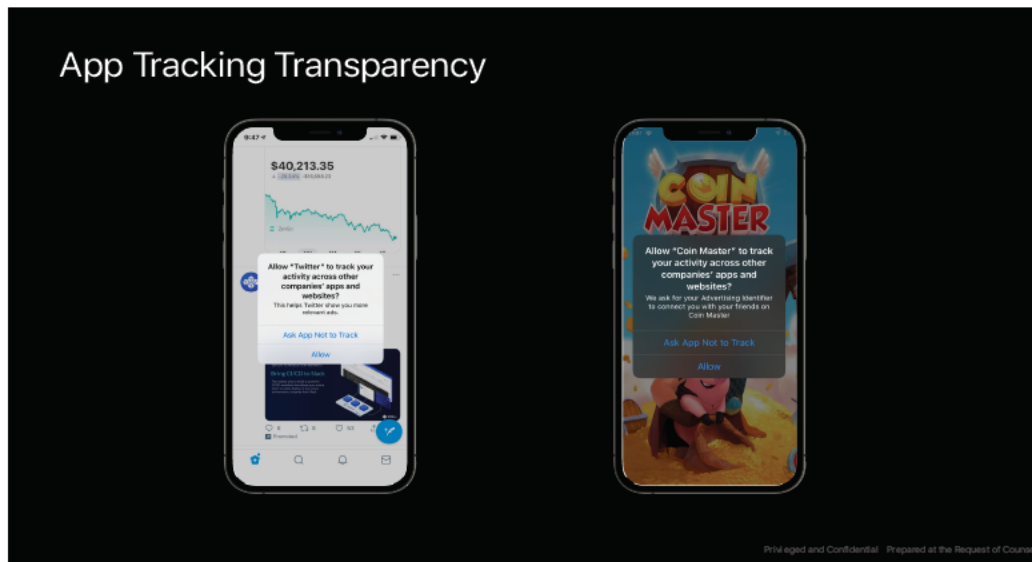
In the early years of Free 2 Play games, scaling and user acquisition was a science that only a few developers mastered and that let to the first hit games. However, improvements to the user acquisition toolsets coupled with growth in developer expertise and industry wide improvements to in game monetization created a highly competitive environment.

[CLICK]



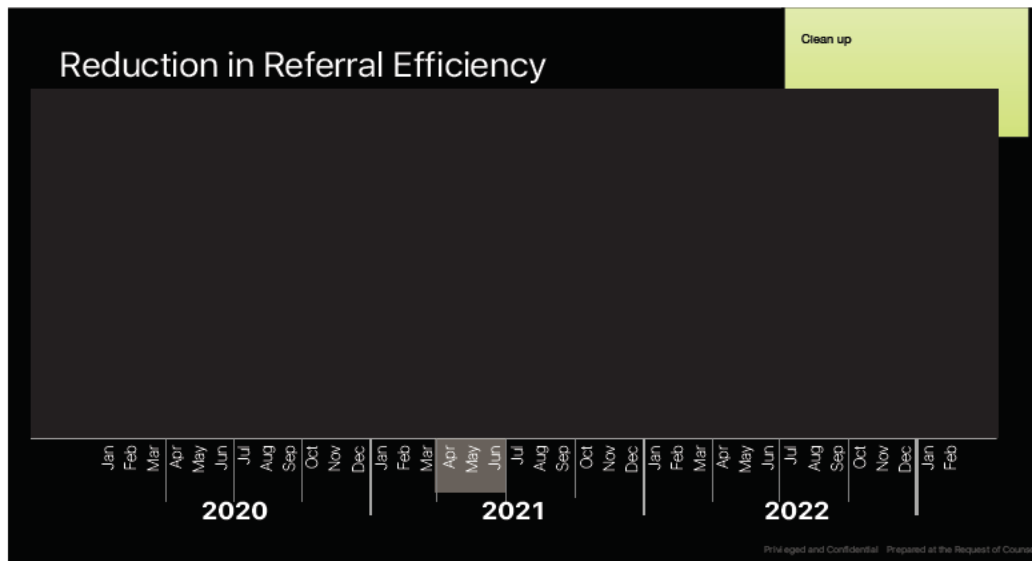
User acquisition became a commodity, causing Acquisition costs to continuously rise, as developers large and small compete to acquire high quality users

Source: <https://mobidictum.com/game-industry/monthly-cpi-of-casual-games-doubled-in-a-year/>



And during this time, we also introduced ATT, which magnified the pressure around UA, leading to even higher acquisition costs and reducing effectiveness of some marketing channels.

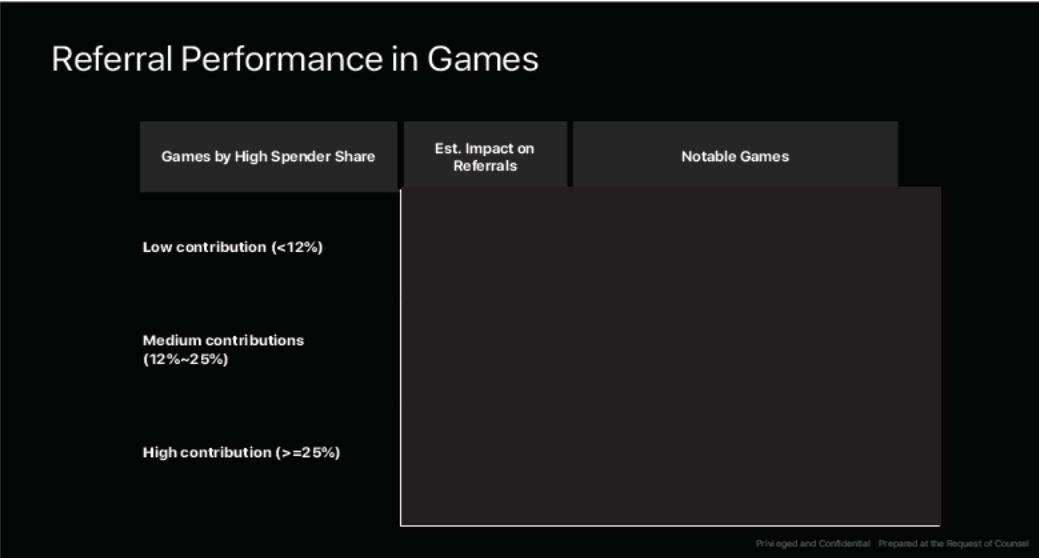
[CLICK]



[Timo]

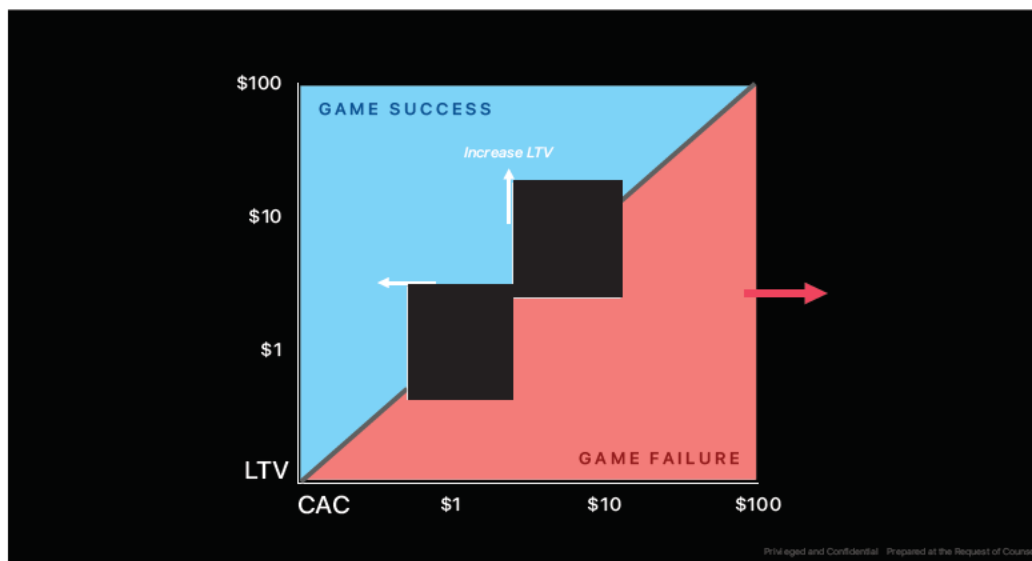
- Apple began enforcement of App Tracking Transparency in April 2021, giving customers choice when apps want to track their activity across other companies' apps for the purposes of advertising or sharing with data brokers.
- These customer benefits have been great, but as we expected, they have also been accompanied by impacts to advertising efficiency that have created new challenges for developer's marketing to the App Store, especially for [REDACTED]
- This chart shows a line that represents the day-30 spend efficiency of App Store referrals relative to App Store search over time. We're using an a comparison with Search as a baseline because any shifts in content or customer behavior should be reflected in both channels. [CLICK]
- Since the launch of ATT, we've seen that referrals to the App Store have become about [REDACTED] less efficient relative to Search. [CLICK]
- In response, we have seen developers [REDACTED]

-
- Since iOS 14.5, we've provided customers with the choice to allow an app to track activity across other companies' apps for the purposes of advertising or sharing with data brokers.
 - This feature has been a huge benefit to our users, but it has also created new challenges for developer's marketing to the App Store, especially [REDACTED]



If we look at our data, we see that game categories that rely heavily on high spender contribution and finding these high affinity players, were impacted the most by the introduction of ATT reducing the efficiency of referral channels by [REDACTED]

[CLICK]

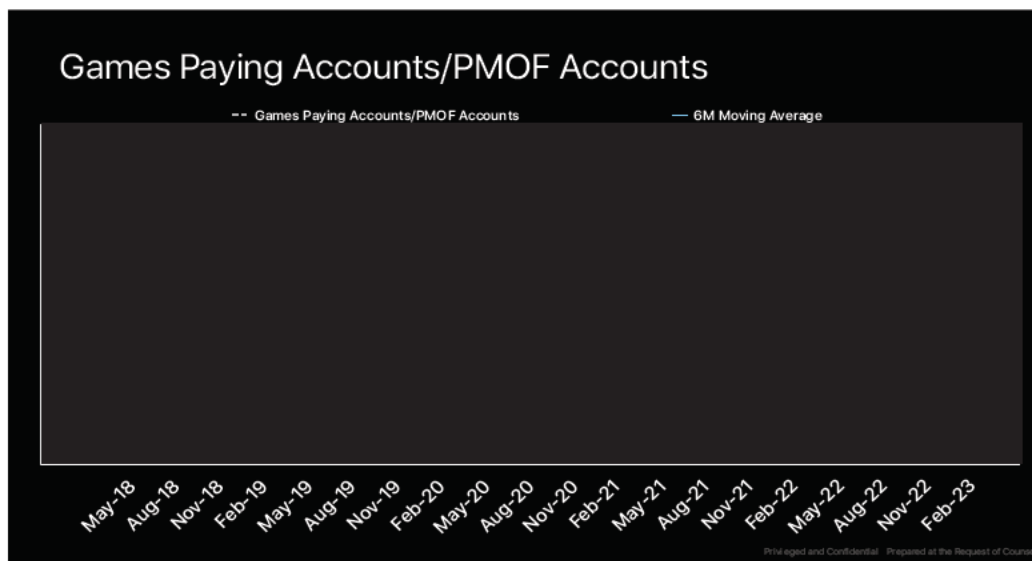


So developers want to push their games up and to the left [CLICK]

However when acquisition costs start to skyrocket, [CLICK] games get pulled in the opposite direction.

So devs are immediately under pressure to increase that LTV [CLICK] to pull the games back up.

Skewing the payer distribution even more towards the top, risking player burnout and in some cases even drawing regulatory scrutiny



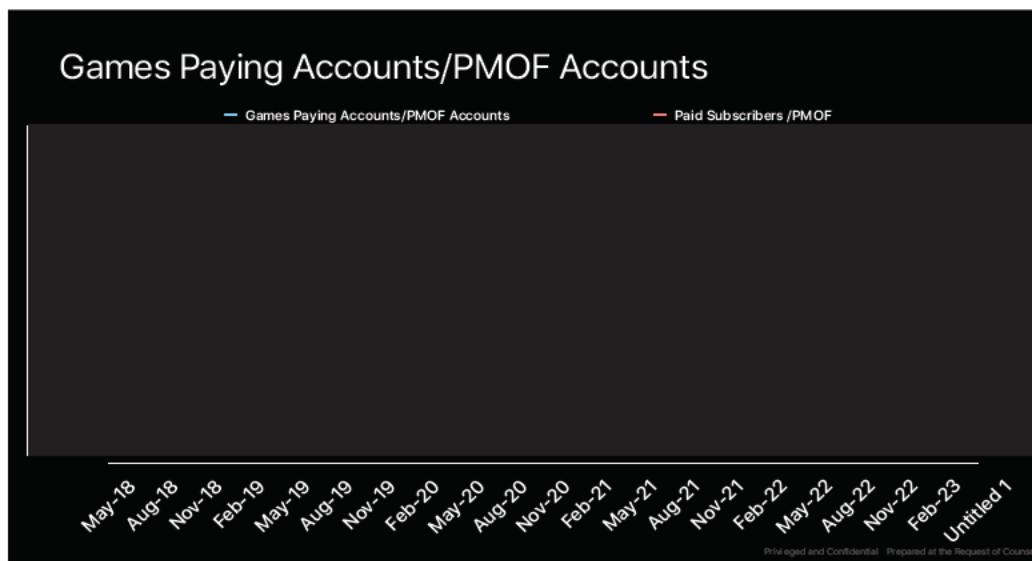
And the reason this is happening is also because [REDACTED]

On our side, looking at Games Paying Accounts as a percentage of accounts with a PMOF, we can see that there has been [REDACTED]
[REDACTED]

What this is saying, is that gamers have remained a [REDACTED]

There does not appear to be anything in recent years that has [REDACTED]

[REDACTED] even massive game launches, new platform features, or the pandemic, [REDACTED]
[REDACTED]
[REDACTED]



And the reason this is happening is also because [REDACTED]

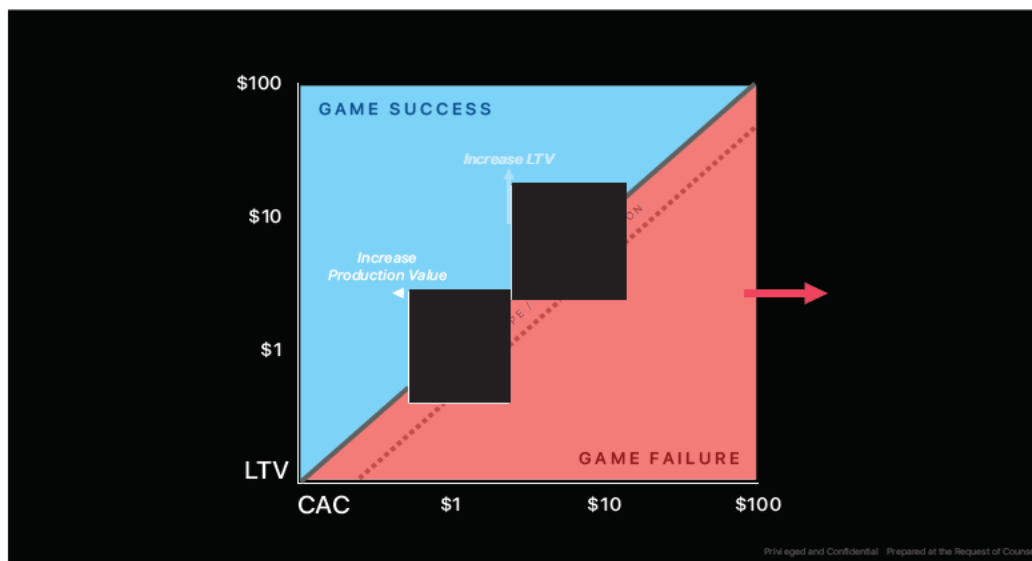
On our side, looking at Games Paying Accounts as a percentage of accounts with a PMOF, we can see that there has been [REDACTED]

What this is saying, is that gamers have remained [REDACTED]

There does not appear to be anything in recent years that has [REDACTED]

[REDACTED] even massive game launches like [REDACTED] or other massive hits, new platform features, or the pandemic, [REDACTED]

[CLICK] Let's just compare this metric to the subscription business where the addition of new apps, services and content types led to increase in the number of paid subscribers/PMOF.



So if LTV is reaching its limit, the other option developers are trying, is to lower CAC by increasing production value [CLICK]

The thinking here is that the more attractive the content, graphics, gameplay, and IP, the easier it is to acquire customers *organically*, with lesser dependence on performance based UA

Increased Production Value

*To improve game quality,
costs increase as well*

-  Game Engine
-  Marketing
-  Localization
-  IP Licensing
-  Cross platform

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However, this drive to increase Game quality, raises the ceiling on the cost of production [CLICK]

Because all those attractive features for customers come at increasing cost

Increased Production Value

*To improve game quality,
costs increase as well*

- ⚙️ Game Engine
- 📢 Marketing
- 🌐 Localization
- 📄 IP Licensing
- 🎮 Cross platform



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So if you remember our hit rate graph from when I first started this presentation...

[MAGIC MOVE]

Increased Production Value

*To improve game quality,
costs increase as well*

- ⚙️ Game Engine
- 📢 Marketing
- 🌐 Localization
- 📄 IP Licensing
- 🎮 Cross platform

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When the average cost increases...

[MAGIC MOVE]

Increased Production Value

*To improve game quality,
costs increase as well*

- ⚙️ Game Engine
- 🔊 Marketing
- 📄 Localization
- 📄 IP Licensing
- 🎮 Cross platform

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Some of those slightly profitable titles, are not as profitable anymore

[MAGIC MOVE]

Increased Production Value

*To improve game quality,
costs increase as well*

- ⌚ Game Engine
- 🔊 Marketing
- 📄 Localization
- 📄 IP Licensing
- 🎮 Cross platform


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And those breakevens and losses, lose even more

Increased Production Value

*To improve game quality,
costs increase as well*

- ⌚ Game Engine
- 🔊 Marketing
- 📄 Localization
- 📄 IP Licensing
- 🎮 Cross platform



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Dropping the success rate down to a more alarming 10% in this example

Billings from New Games Released In-Year (US)

"We made the decision to temporarily suspend our new game development pipeline until the ROI for new games is economically viable."

Robert Abrahams
President & CFO, Playtika

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And all of this leads to developers being more risk averse about new game launches.

[CLICK]

Billings from New Games Released In-Year (US)



"We made the decision to temporarily suspend our new game development pipeline until the ROI for new games is economically viable."

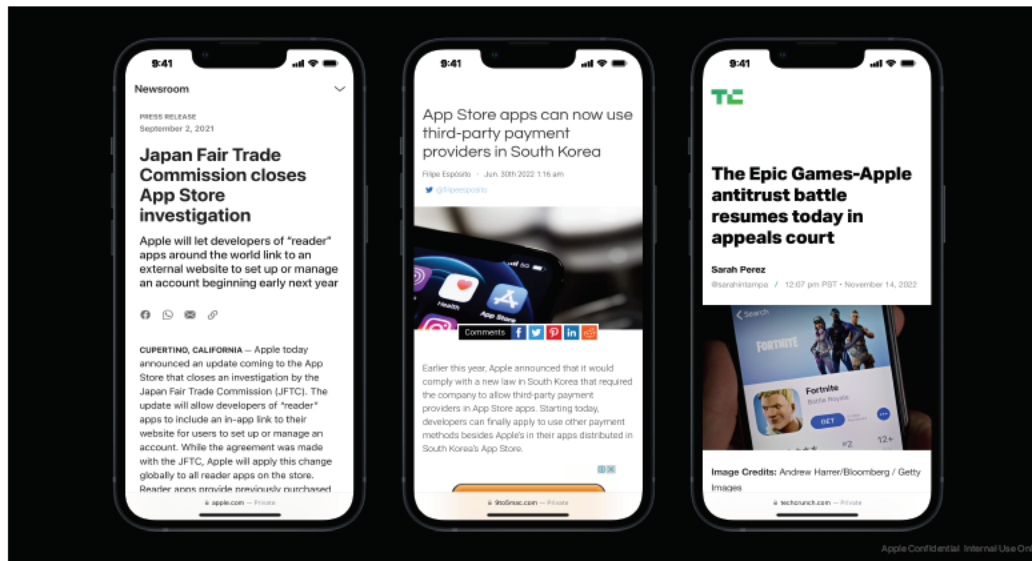
Robert Abrahams
President & CFO, Playtika

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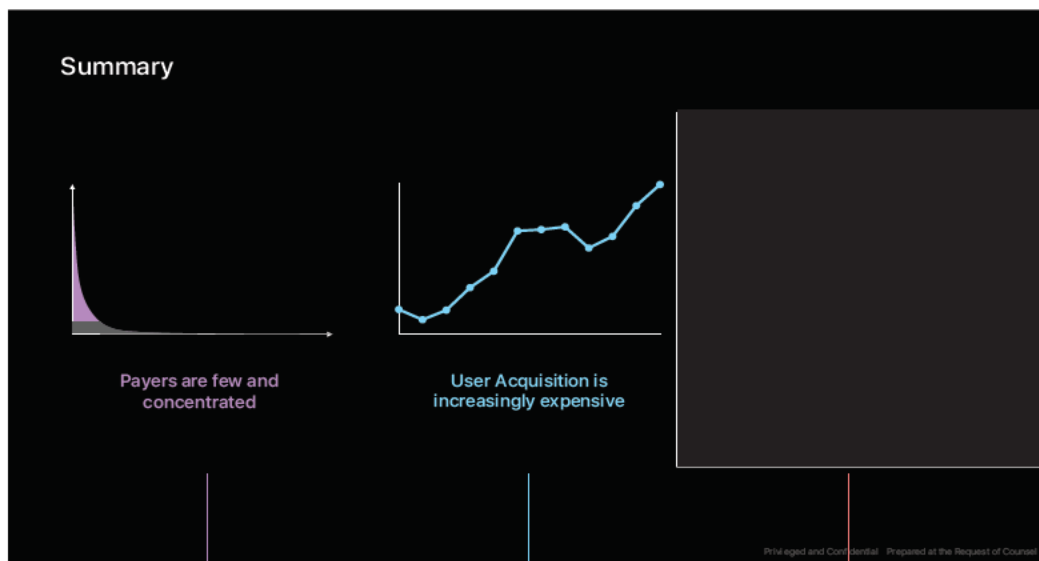
Sav updating slide with data

And all of this leads to developers being more risk averse about new game launches.

[CLICK]



And hence, amidst all this pressure, developers are on the lookout for creative solutions for relief, and are getting more comfortable in pushing the limits, given the regulatory backdrop that this is all set against today.



So in summary, it's basically a story of 3 charts

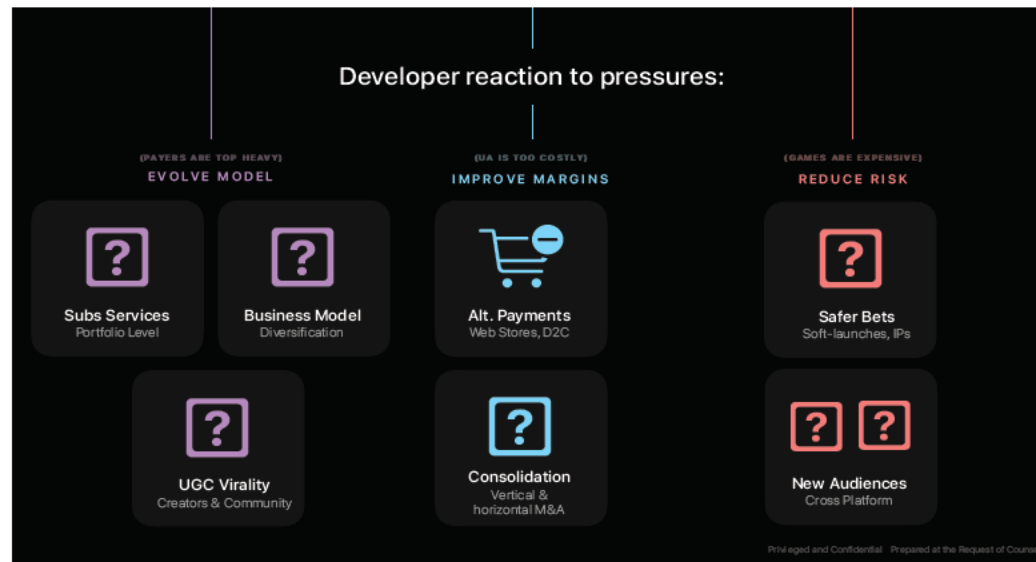
[CLICK] payer distribution within games is very top heavy, and getting more so each year.

[CLICK] customer acquisition costs are increasing dramatically, and discoverability is getting harder each year

[CLICK] games being a hit driven business, are expensive to make, and getting more so each year and the chances of new hits is decreasing significantly.

Each of these is approaching a breaking point in the industry. So let's take a look at how developers are actually responding to each of these forces[CLICK]

[MAGIC MOVE]



...By evolving their business models, improving margins wherever they can, and derisking above all else

[CLICK]

Developers interested in sustainability are exploring new business strategies such as building a portfolio of titles for a future subscription service model, or designing their monetization systems away from loot boxes and instead towards providing value to a wider paying base. They are also trying to unlock new growth channels by investing heavily into creator models and out of App Store virality.

[CLICK]

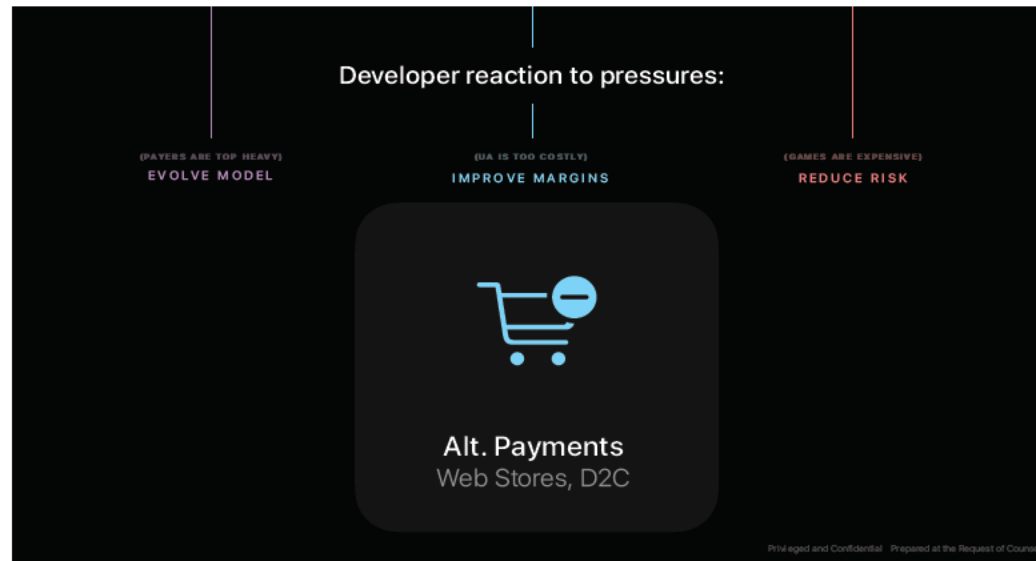
To reduce margins, developers are going direct to customer via Web Stores, and building up their own collection of first party data through acquisition in order to make UA more efficient.

[CLICK]

And To reduce risk of a costly hit driven business, developers are placing safer bets to get more tickets to the raffle. Soft launches are essential to manage risk. We also know that for upcoming games, most of our developers are looking at launching on multiple platforms parallel, which in turn makes them less willing to implement features that are specific to just one of them.

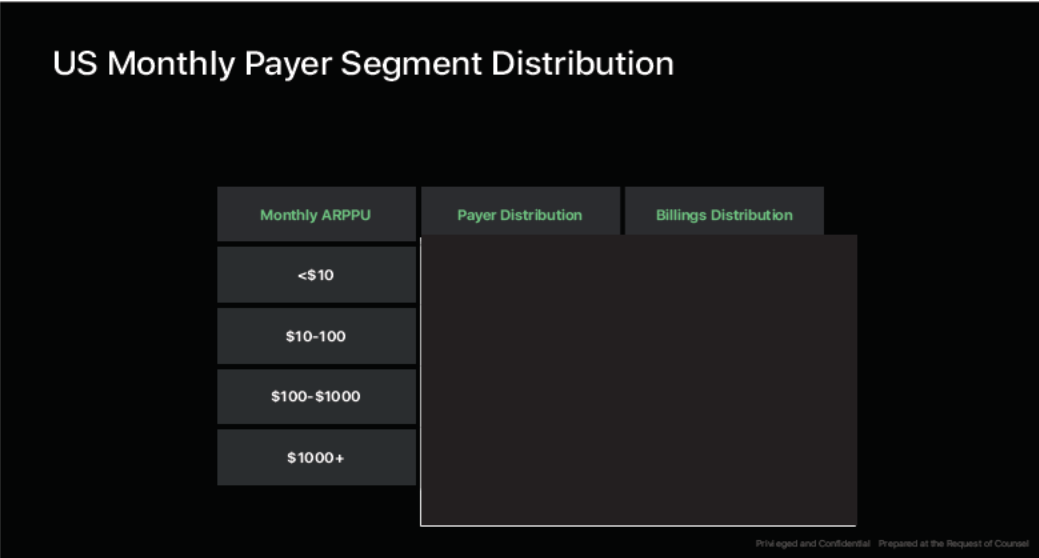
Each of these developer responses is a signal that the industry is shifting, the business is shifting.. and hence developers are also shifting their focus in this new phase. Also at this point, it's unclear which of these trends will last and which one will become the winning strategy for developers.

But we wanted to take the moment to double click on one of these trends. [CLICK]



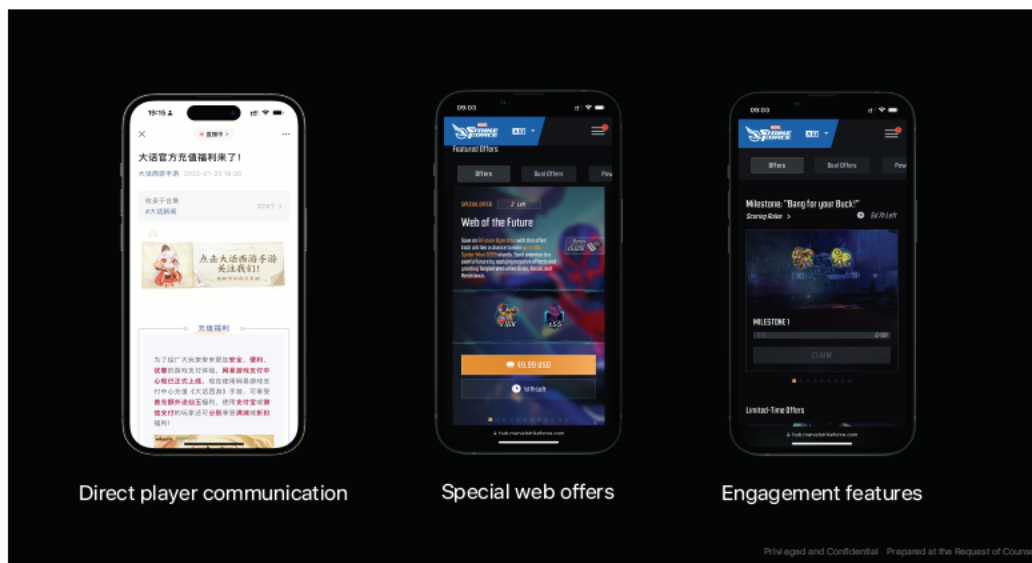
Web Stores. You've heard us talking about this before. Web Stores are gaining popularity and the majority of our game developers are exploring this option to increase margins.

[CLICK]



And with our top heavy business, where the [REDACTED] of our highest spenders generate [REDACTED] of our billings, this becomes feasible and attractive for developers. They just need to target a [REDACTED] and highly engaged group off players to move a meaningful amount of billings to their Web Stores.

[CLICK]



In just the last couple of months, developers have been becoming more and more sophisticated in driving payers to the web.

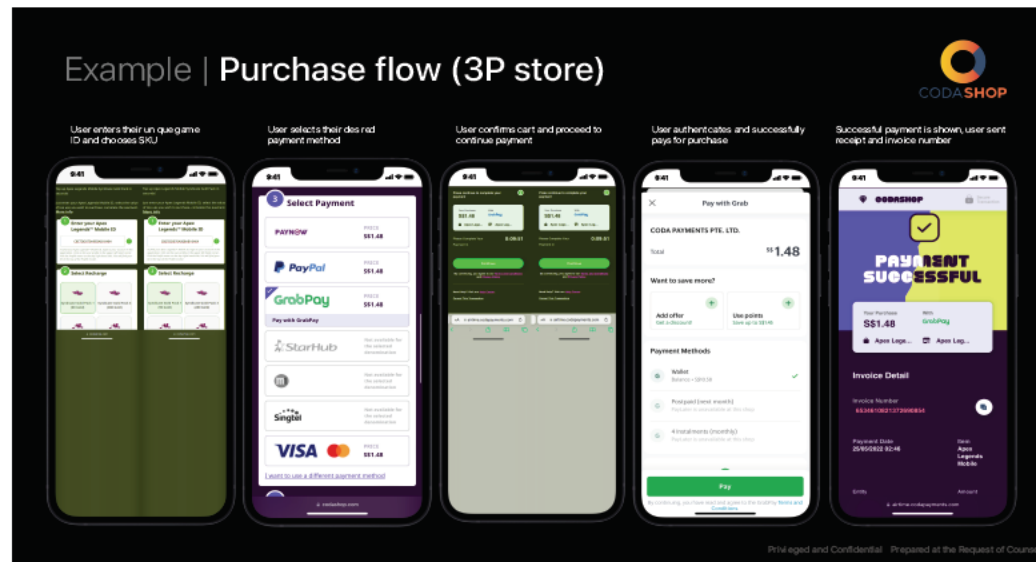
[CLICK] While they are not allowed to advertise Web Stores within the games, they are using direct communication via email or direct messages, Discord and their social channels to highlight the values to players.

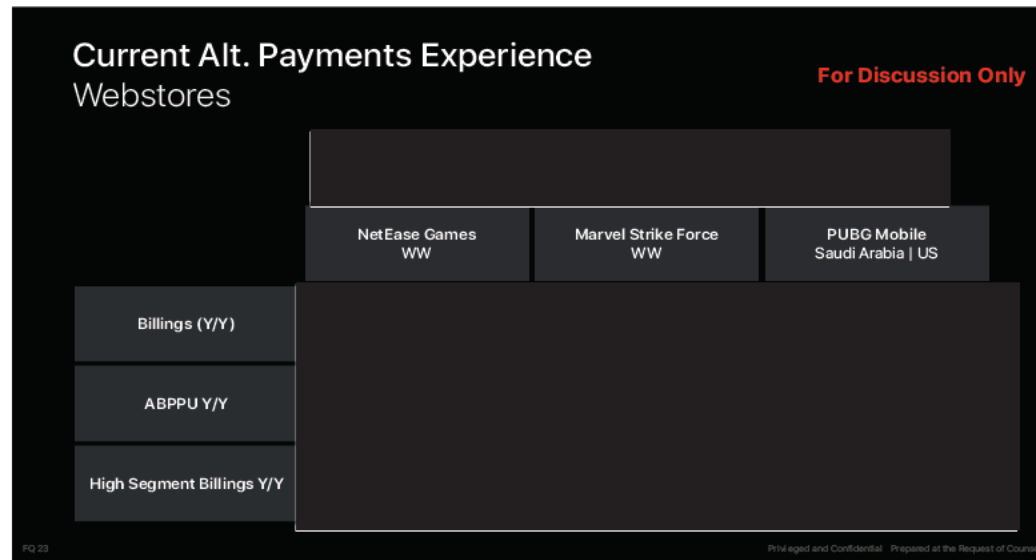
[CLICK] In competitive games, players will have to get the latest and greatest characters and items to compete with other players.

And we noticed that developers started offering these items exclusively within their Web Stores making it mandatory for engaged players to use them.

[CLICK] Lastly, we see that developers are building engagement features into these stores. In this example, you get a free daily bonus that you can only claim on Web.

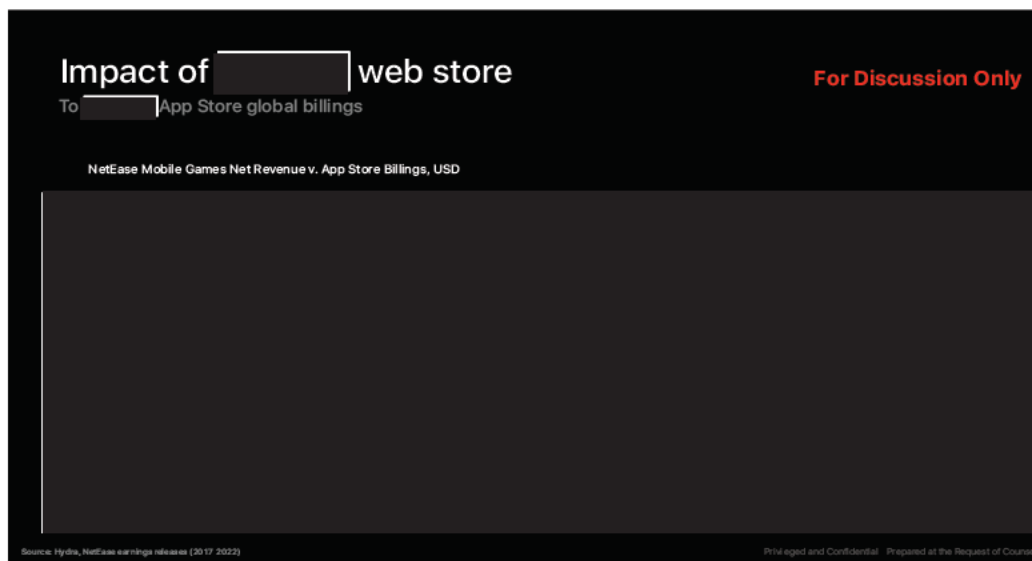
[CLICK]





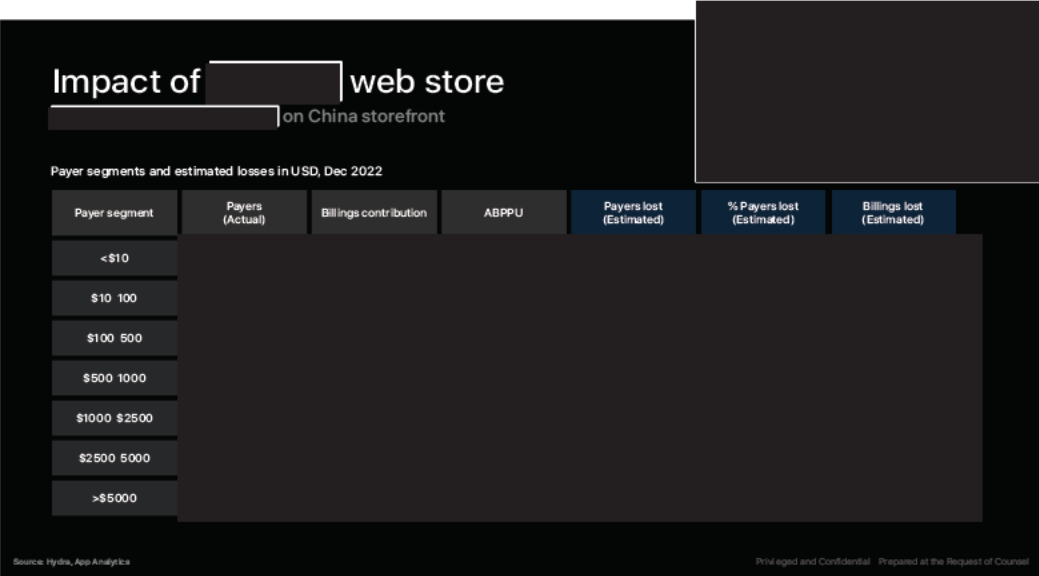
And with these features, we see that some developers have been very successful in their mission of driving highly engaged users to the Web, causing a [REDACTED] in high segment billings on the App Store of up to [REDACTED]

[CLICK]



For [redacted], we noticed an increasing gap between their reporting quarterly mobile earnings and App Store billings. In the last quarter, we estimate that we lost [redacted] in billings from Netease games due to their usage of Web Stores.

And while it's harder to see the impact on a portfolio level as Web Stores launch at different times and each game experiments with different engagement tactics, it becomes more visible when looking at individual titles.





For example, [redacted] #1 title [redacted] launched their Web Store in June 2022. This game is extremely top heavy and [redacted] of their top payers contribute [redacted] of billings. And it is in this top segment where we see a strong [redacted] in payers so we were able to estimate a gap and the impact on our business.

The most concerning observation is that it took only [redacted] of their billings to the Web Store.

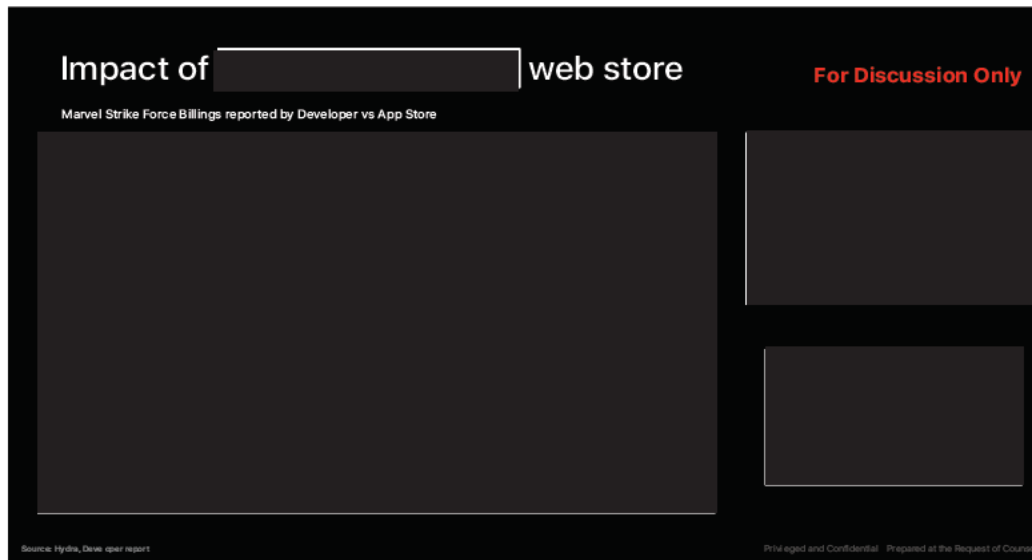
[NEXT SLIDE]

Methodology

Since [redacted] is extremely top heavy, we further break out the High segment (>\$100) into four segments (see back up slide for spend segment break down), where the highest segment (users that spend >USD 5K per month) make up [redacted] of total payers but contribute [redacted] of billings.

For each spend segments with >\$500 in monthly spend:

- 1) Spend segment payers as % of total active devices > # of spend segment payers
 - 2) x Spend segment ABPPU
- = Spend segment billings



In this second example, the developer of [redacted] shared their actual total revenue by iOS players with us so we were able to compare this directly with App Store billings.

And also here, it took the developer only weeks to migrate a large share of highly engaged payers to the Web leading to gap of [redacted].

[CLICK]



And while these are [REDACTED] examples, we found that out of out top 100 developers, [REDACTED] have Web Stores available today, and this includes our largest and most loyal partners. [REDACTED] have Web Stores available today.

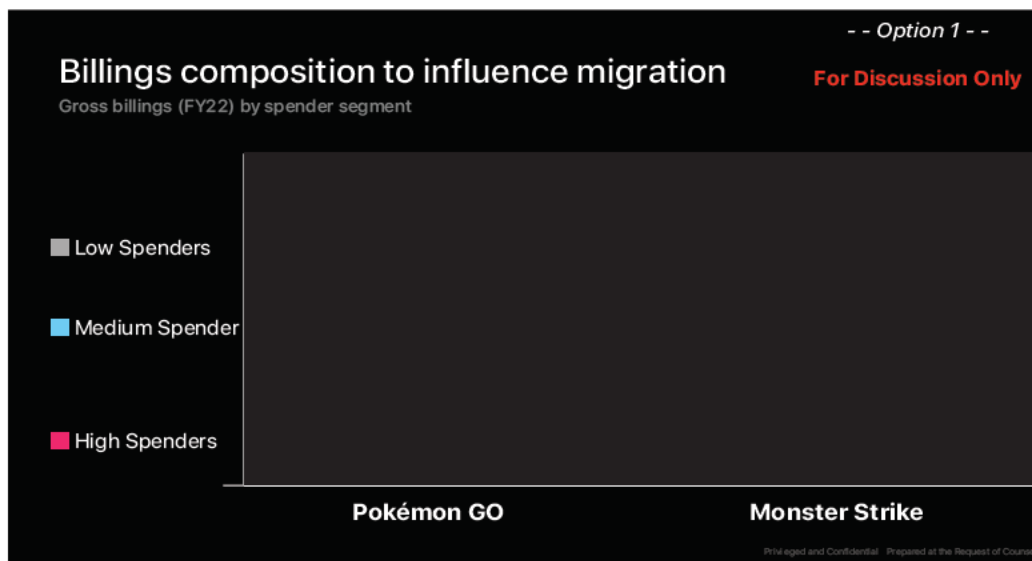
Not all of these developers are using all of these engagement tactics today however there is a big risk when developers and Web Store providers are becoming more sophisticated.

So we wanted to understand what the impact to our business could be if these [REDACTED] developers started driving more of their high spenders to the Web.



For the modeling exercise, we wanted to take a conservative approach so we only looked at these [REDACTED] and not considered new Web Store launches.

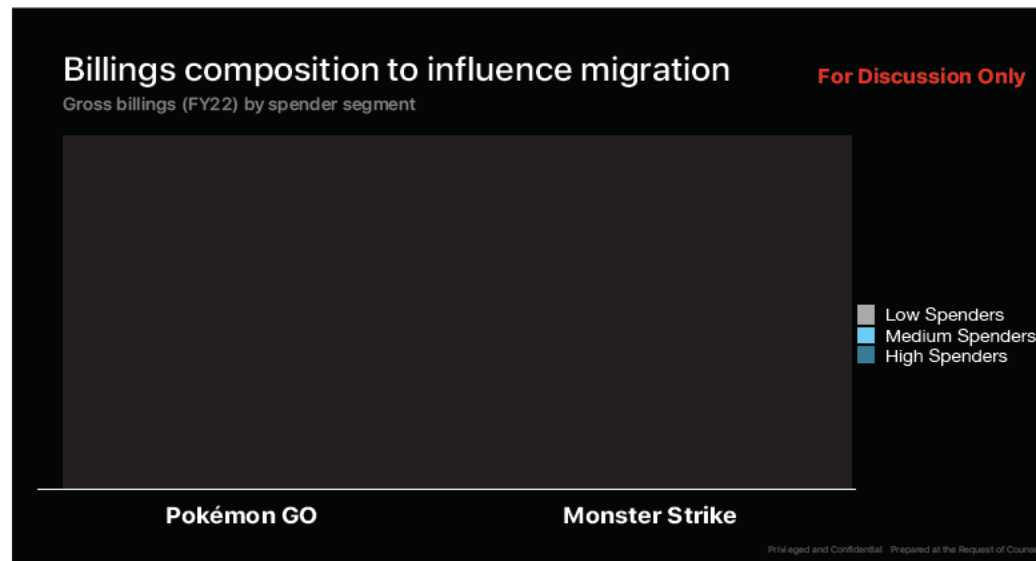
We modeled a loss in payers in the high spending segment only and assumed that developers will only be able to attract a subset of these payers and not all.



And as you would assume, the billings composition of High, Medium and Low spenders varies significantly per title. In the model, we are only modeling a migration out of the High Spender bucket so in the Pokemon Go example, this would impact up to [REDACTED] of their billings and [REDACTED] for Monster Strike.

And with the introduction of the floor of let's say 50%, the maximum assumed loss for Pokemon Go would be [REDACTED] and [REDACTED] for Monster Strike respectively.

[CLICK]



And just to visualize this very quick: as you would assume, the billings composition of High, Medium and Low spenders varies significantly per title. In this model, we are only looking at a migration out of the High Spender bucket so in the [REDACTED] example, this would impact up to [REDACTED] of their billings and [REDACTED] for [REDACTED]

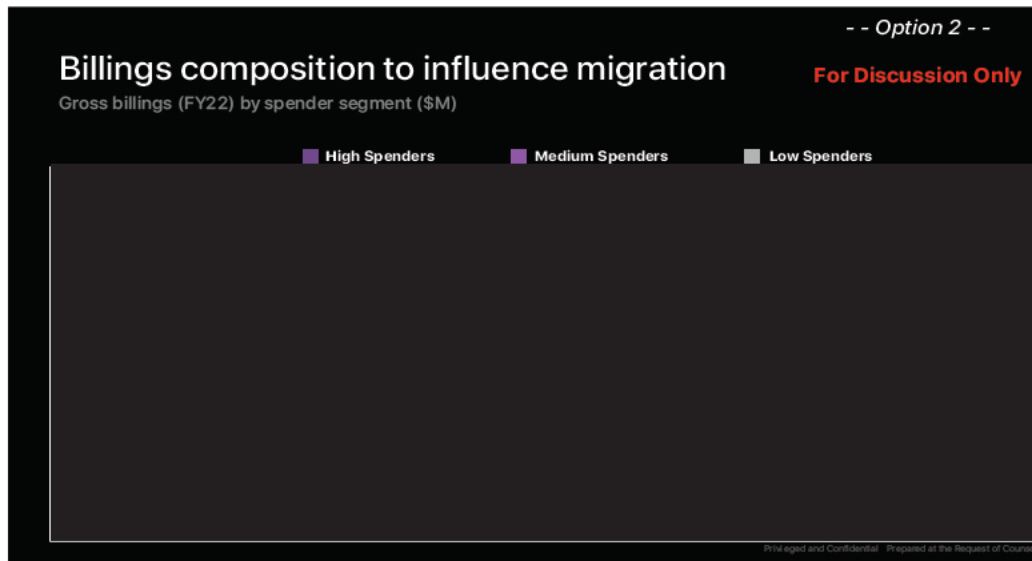
[CLICK]



And with the introduction of the floor of let's say 30%, the maximum assumed loss for [REDACTED] would be [REDACTED] and [REDACTED] for [REDACTED] respectively.

And with different adoption curves, we are modeling how fast these games would get to the maximum assumed loss. From the existing case studies, we know that developers are able to hit this level relatively quickly when putting effort and resources behind it.

[CLICK]





Moving on to the different scenarios

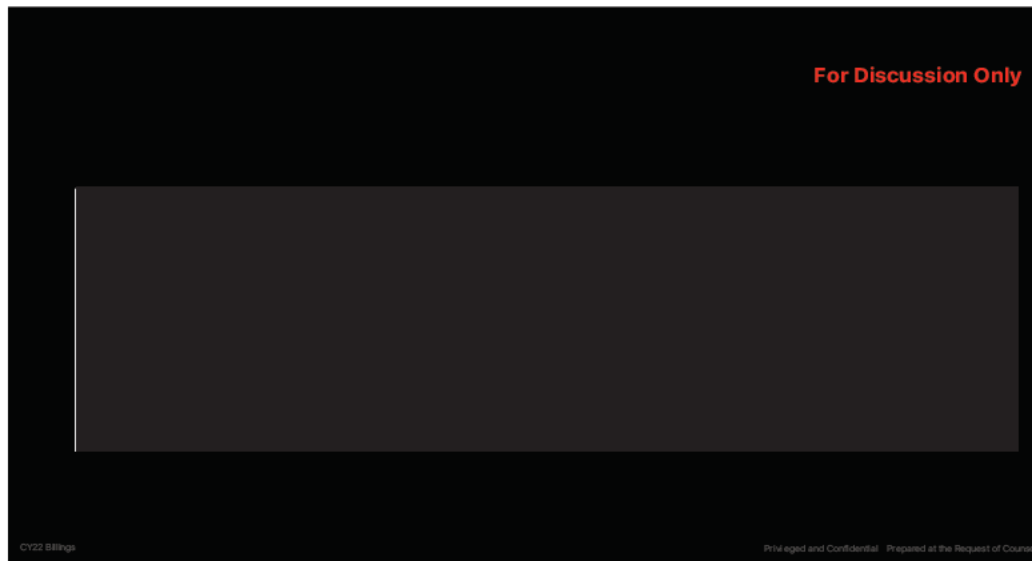
[CLICK] In the first scenario, we assume mild impact in year 1, which picks up momentum in year 2 with more severe declines of [REDACTED] of High Spenders in out years, eventually returning to trend. In this Scenario, our billings will be impacted by \$22B of a [REDACTED]

[CLICK] In the worst case scenario, we modeled size blue declines of [REDACTED] High Spenders expected imminently, returning to trend thereafter. This would cause a total billings impact of [REDACTED]



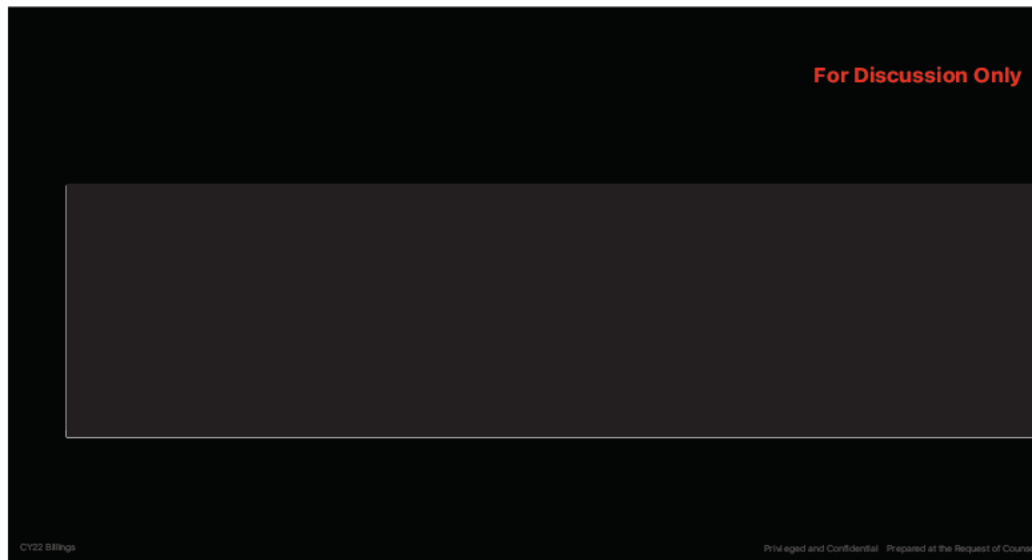
The most realistic case probably sits in the middle, with steady erosion of [REDACTED] of High Spenders through year 3 before returning to trend. In this scenario, we expect a billings impact of [REDACTED] of total.

Handing over to ...



Now that we have reviewed the state of games and the drivers behind the [REDACTED] in billings, we want to shift gears and take a quick look at the other [REDACTED] of our business, apps.

<CLICK> Apps subscriptions are growing at [REDACTED] on the transactional model. However, in the apps world we have seen for a long time a very competitive landscape coming from alternative payments.

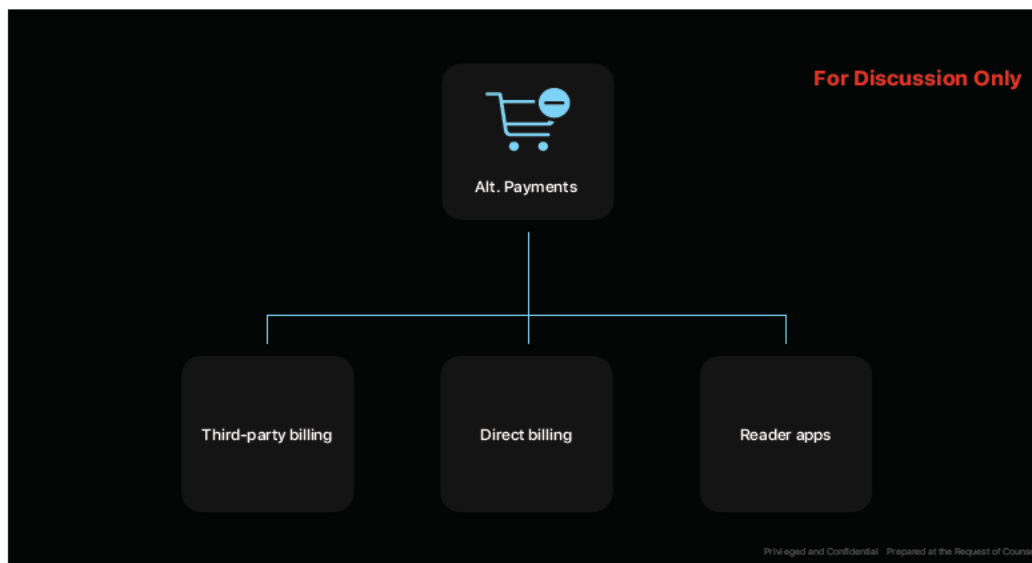


Given the auto-renewable nature of subscriptions, developers only need to prompt users once for their method of payment once to fully disintermediate us.

Once they've acquired the user off platform, they can take the user to the App Store for download and leverage our multi-platform rule to activate their service in app.

No other transaction needs to happen in the app via IAP for the whole customer lifetime from then on.

In contrast, transactional business models have more friction built in, which had prevented alternative payments from becoming prevalent until the emergence of web stores.



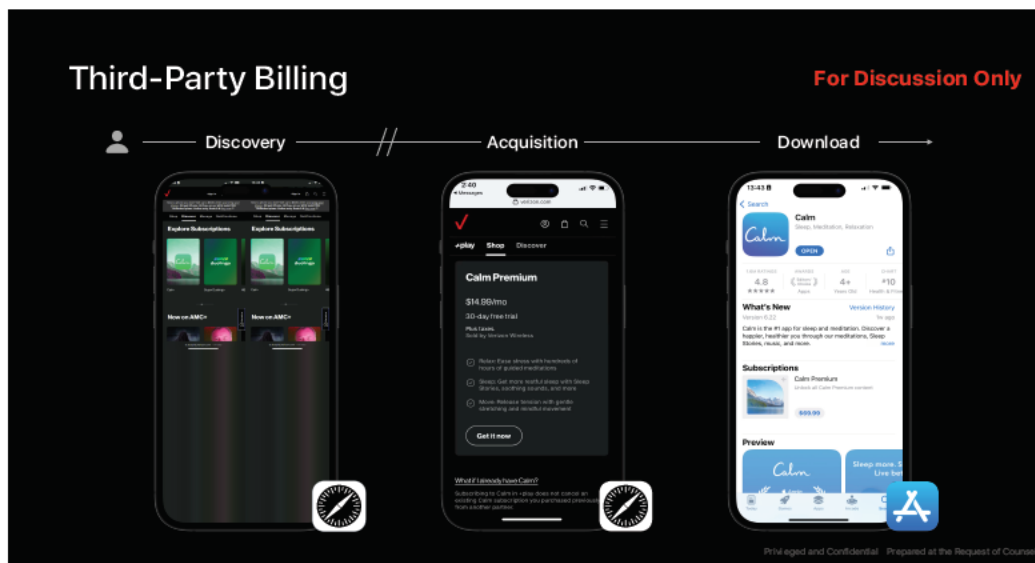
We currently see three main types of alternative payments for apps.

<CLICK> 3P Billing, which includes: web stores for businesses that include transactional IAP, such as Tinder, phone carrier billing such as Verizon Plus, and retailers digital stores such as Walmart.

<CLICK> Direct Billing, with most top developers offering a way to subscribe directly on their websites.

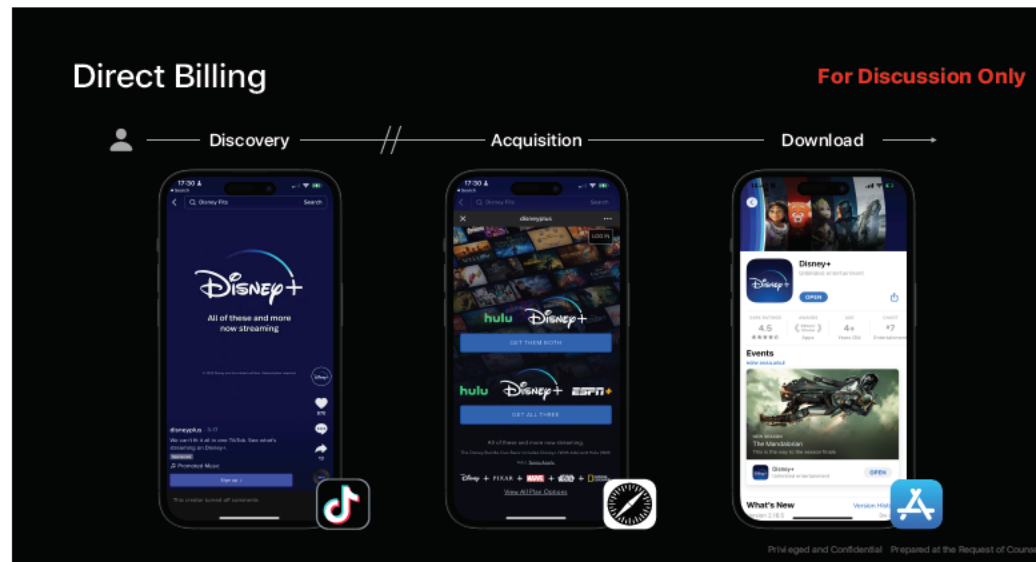
And, <CLICK> similar to direct billing but with the important nuance that they don't have IAP in app, reader apps on the Store with or without the external link account.

Let's review the user experience for each of them.



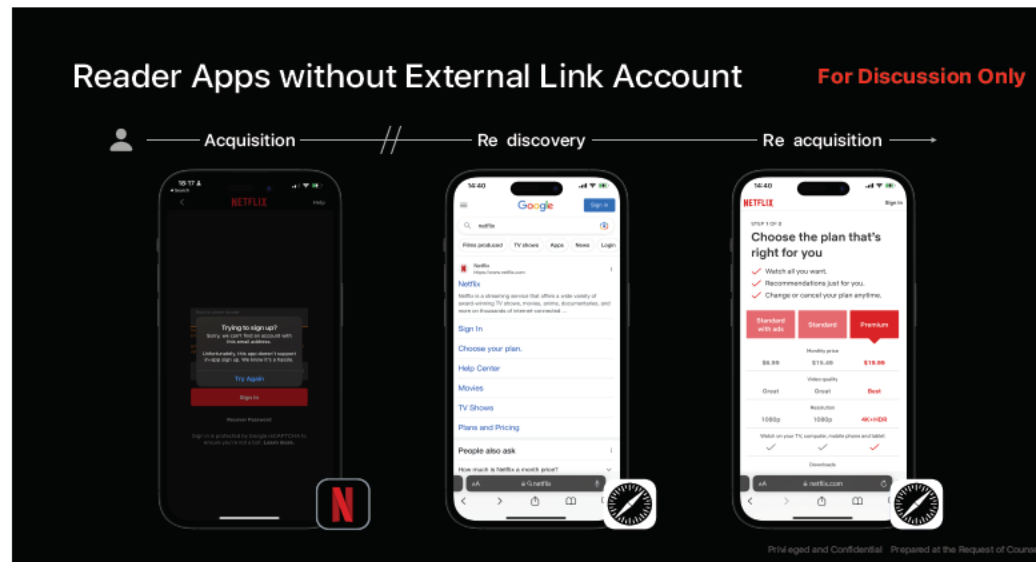
In this example of 3P billing, a user discovers a subscription such as Calm on the Verizon Plus store. Then the user is prompted to subscribe using their payment method on file with Verizon, and is then linked to the Store for download and activation using the multi-platform rule.

The breakage point in this flow happens between the discovery and acquisition stages.

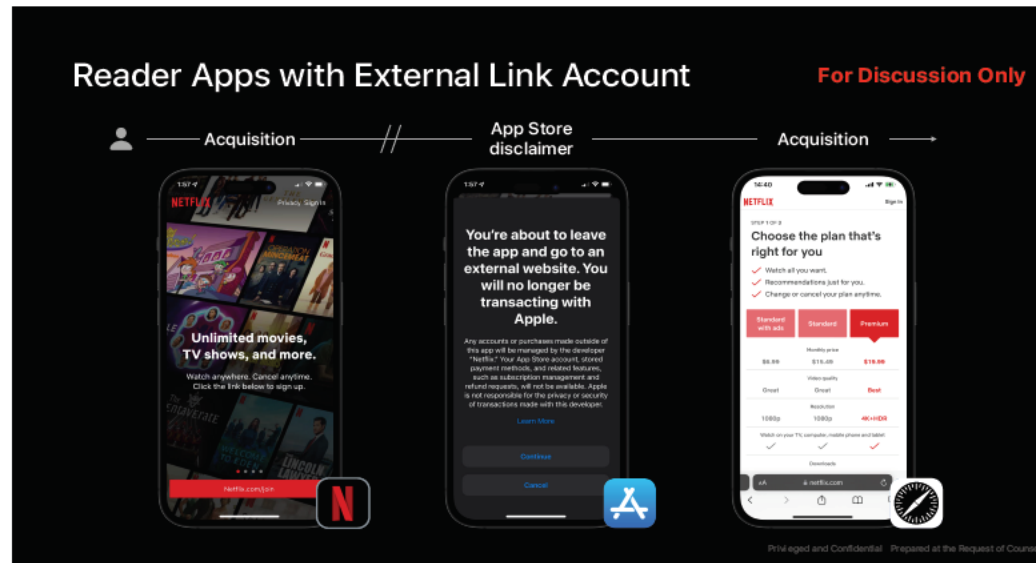


In the next example the user sees a real-life ad of Disney+ on TikTok. Once they taps on Sign up, they're prompted to subscribe on Disney+ website, where after collecting method of payment they prompt them to download the app on the Store.

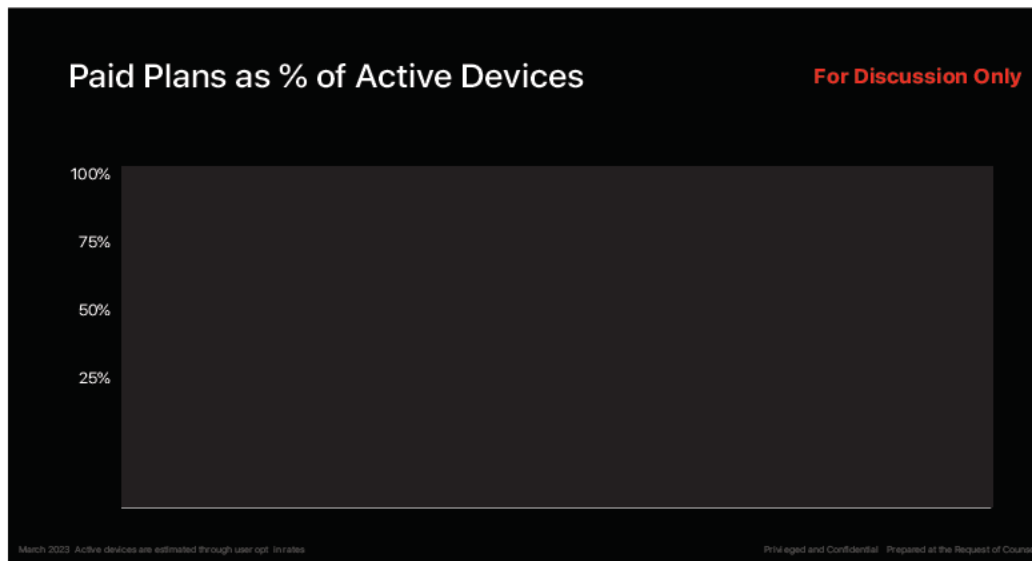
Most top developers point users acquired off store to direct billing.



In the reader example, even if the discovery happens on Store and the user tries to subscribe in app, they are then left to rediscover and subscribe off platform via website.



Reader apps can now have a more seamless experience if they apply for the External Link Account entitlement, where the acquisition happens off app in their website after the user sees the App Store disclaimer.



If we look at paid plans on IAP as a % of total active devices in our ecosystem, and isolate this metric for apps with a hard paywall experience, we have a very approximate estimate for overall subscriber share of iOS users.

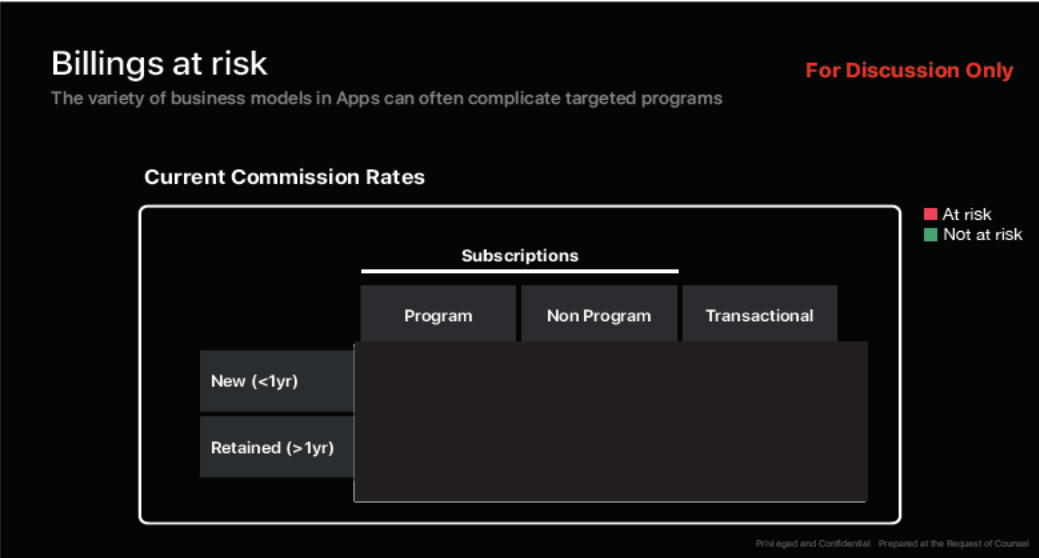
We've seen this ratio remain stable or even grow slowly for most apps in the last 3 years.

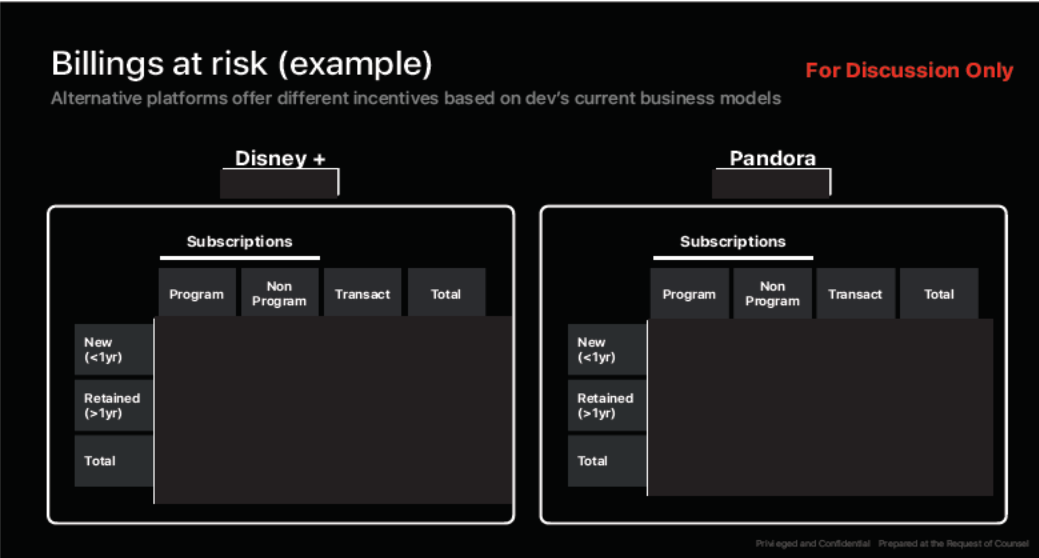
However, even after all our business optimization and featuring efforts with top developers, and despite a few exceptions for smaller managed devs, we are typically only a small share of their subscriber base for Apple customers.

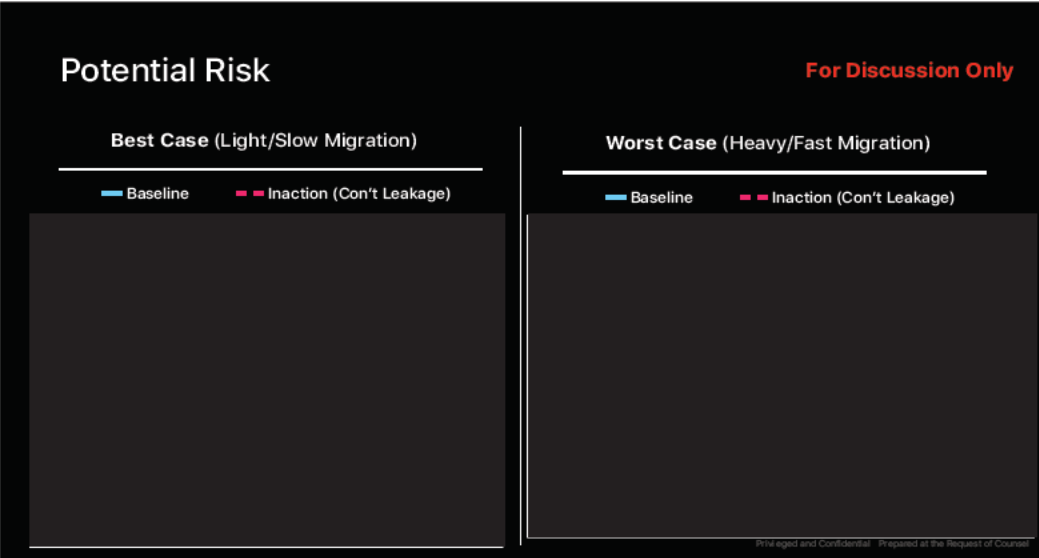
Modeling Assumptions for Apps

For Discussion Only

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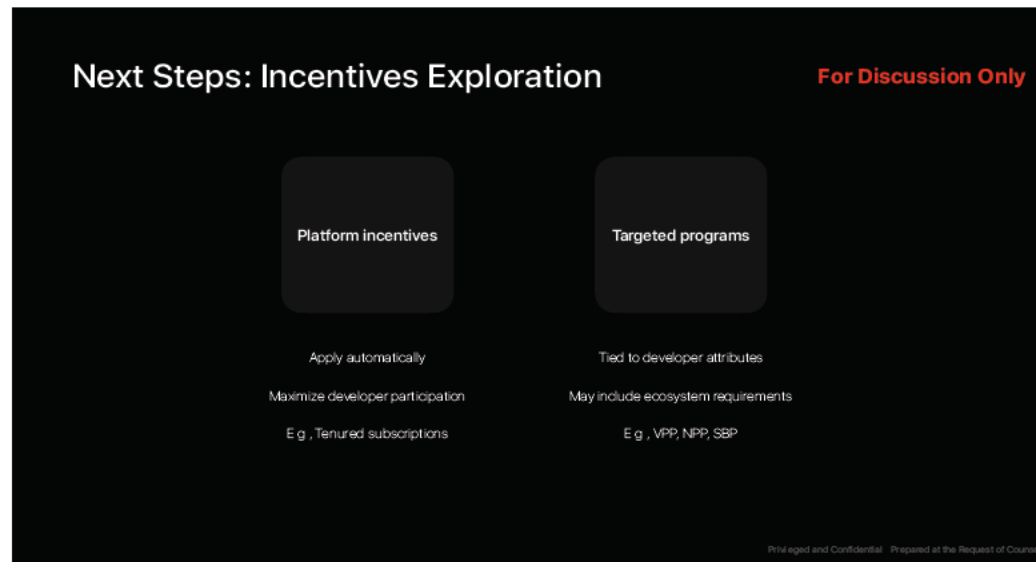


Best Case
[redacted] annual [redacted] in billings at risk (all non-Y2 subscriptions) leading to [redacted] in out years

Worst Case
[redacted] in billings at risk (all non-Y2 subscription) expected immediately, [redacted] slightly in out



[Redacted]





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